Office of Sustainable Environment & Education
Pollution Prevention Program
33 S.W. 2nd Avenue
Miami, Florida 33130-1540

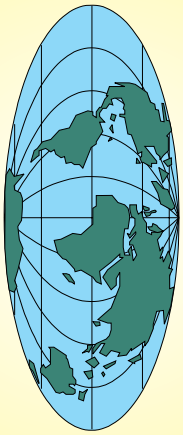
ATTENTION!

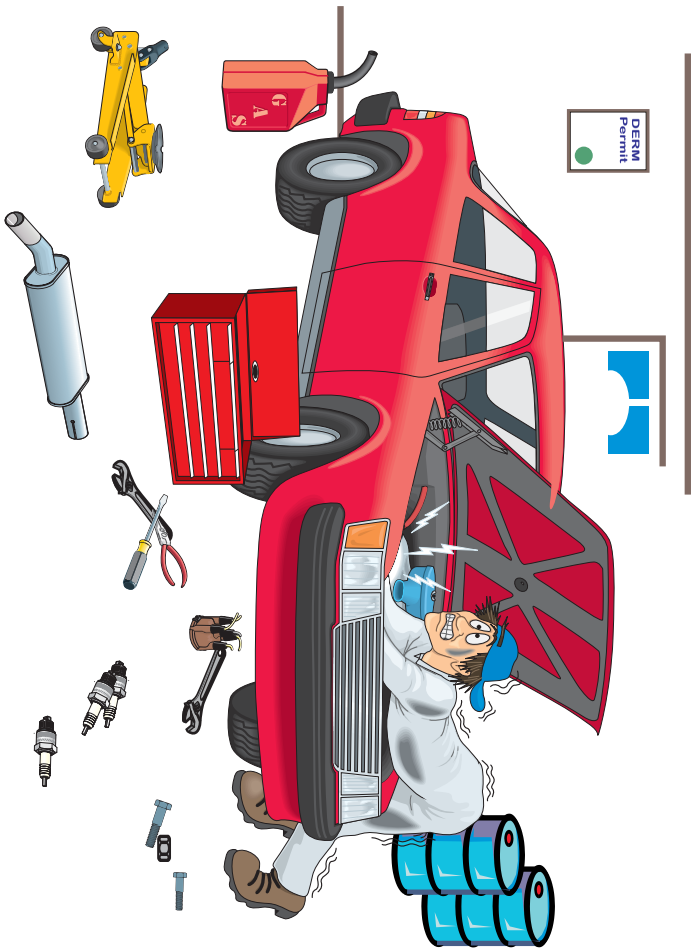
Printed on paper

Important information about the environment and your business!

POLLUTION PREVENTION

for Mechanical Repair Shops





This booklet provides information about environmental issues and is produced by the Dade County Department of Environmental Resources Management.

Pollution Prevention for Mechanical Repair Shops

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This document is published to help educate businesses and individuals on some of the environmental issues affecting them. It suggests options that may help businesses operate in an environmentally appropriate manner. These options are based on experience and simple common sense ideas. Many of the options go beyond what is required to remain in compliance with the regulations. Please refer to Chapter 24 of the Metropolitan Dade County Code ("Metropolitan Dade County Environmental Protection Ordinance") for the specific regulations.

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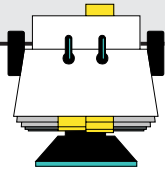
Contact Phone Numbers



DADE COUNTY

Department of Environmental Resources Management
33 S.W. 2nd Avenue, Miami, FL 33130-1540
Internet Address: "http://www.metro-dade.com/derm"

Main Switchboard ..... (305) 372-6789
Air Management Division ..... (305) 372-6925
(asbestos, refrigerant recovery, air emissions)
Industrial Facilities Section ..... (305) 372-6600
(operating procedures, waste handling)
Liquid Waste Transporters ..... (305) 372-6804
(lists of waste oil or hazardous waste haulers)
Pollution Prevention Program ..... (305) 372-6784
(educational materials, waste assessments)
Storage Tank Permitting Section ..... (305) 372-6716
(storage tank permits)
Wastewater Section ..... (305) 372-6500
(sanitary sewer standards)

Department of Solid Waste Management
8675 N.W. 53 Street, Miami, FL 33166
Main Switchboard ..... (305) 592-1776
Recycling Hotline ..... (305) 594-1500
South Dade Landfill (24000 S.W. 97 Ave) ..... (305) 258-2830

STATE OF FLORIDA

Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road, Tallahassee, FL 32399-2400
Main Switchboard ..... (850) 488-0300
Bureau of Waste Planning and Regulation ..... (850) 487-3299
(EPA hazardous waste permit)
Pollution Prevention Program ..... (850) 488-0300
Southeast Region Office (Main Switchboard) ..... (561) 681-6600
Emergency State Warning Point 1-800-320-0519

UNITED STATES

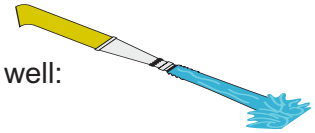
Environmental Protection Agency
Region IV , Atlanta, GA ..... (770) 347-3016
Small Business Assistance Ombudsman 1-800-368-5888
Waste Reduction Resource Center 1-800-476-8686
(waste reduction information clearinghouse)

Engine, Vehicle, and Floor Cleaning

Wastewater from engine, vehicle, or floor cleaning may contain oil, solvents, and other pollutants. Regulations limit the levels of pollutants that you can discharge to the **sanitary sewer**. There should be **no** industrial discharges to storm sewers, septic tanks, or open ground. Here are some tips:

- Sweep floors regularly and then spot mop with water as needed.
- Use absorbent materials to quickly clean-up any spills. (See p.10 "Housekeeping and Inventory Control.")
- Wastewater can be collected, treated, and recycled or discharged to sanitary sewers if Sanitary Sewer Standards are met. (See p.15)
- Any detergents or solvents used to clean engines, vehicles, or floors may emulsify oils, waxes, and greases, making the oil/water separator ineffective. In these cases the wastewater should be collected and treated prior to discharge to the oil/water separator and sanitary sewer system.
- Oil must be pumped out regularly from oil/water separators.
- Consider sealing floor drains and oil/water separators to reduce the chance of spills discharging directly into the sewer system.

Wastewater From Vehicle Washing:



1) Served by septic tank and/or potable water well:

Existing Facility:
If you were DERM approved for this work then the wastewater effluent can be collected, treated, and/or recycled. It must then be hauled to a sewage treatment plant by a permitted septic tank hauler after prior written approval (see p.15 for contact info).

New Facility:
Only car wash facilities equipped with a self-contained water recycling system may be approved. These facilities should not "back wash" their filters but instead have them disposed of properly (potentially as hazardous waste).

2) Served by sanitary sewer:

If you were DERM approved for this work then the wastewater effluent can be collected, treated, and recycled or discharged to sanitary sewers. Any wastewater effluent must meet sanitary sewer standards.

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Why Should I Read This Booklet?

It's written for you!
Special efforts have been made to produce a booklet that is informative and easy to read. Although there is a great amount of information included, it is presented in a clear and understandable format.

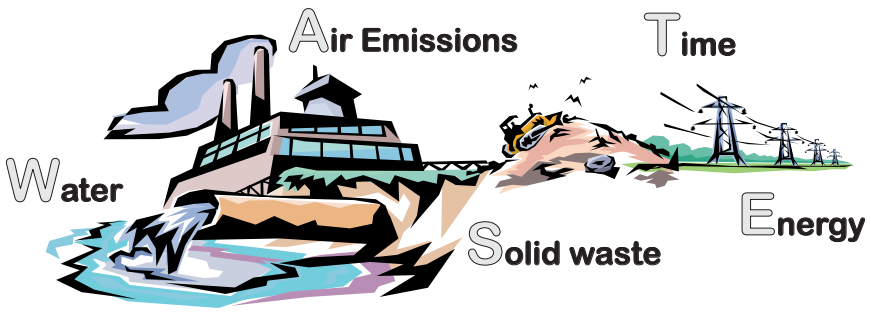
It's the law
As a business owner, operator, or employee, you are responsible for complying with many federal, state, and local regulations. This booklet can help you to comply with those regulations.

It's your money
The proper handling and disposal of wastes can be expensive. Furthermore, the improper handling or disposal can lead to even more expensive clean-up costs and fines. By reducing the amount of waste that your business generates, some of these costs can be avoided.

It's our environment
We all breathe the same air, drink the same water, and walk on the same land. When we pollute the environment we are only hurting ourselves and our children.

Wastes Are Important

Wastes can be found in many different forms. Although we are especially concerned with those wastes that are toxic, all wastes should be reduced or eliminated when possible. Anything that does not leave your business as a product or service is a waste. What types of wastes are at your facility?



Hazardous Wastes

A waste is considered a ***hazardous waste*** if:

1) It has any one or more of the following characteristics:

Ignitable (D001)
Ignitable wastes are easily combustible or flammable. They have a flashpoint of less than 140°F or an alcohol content of 24% or more. *(The flashpoint is the lowest temperature at which the vapor of a combustible liquid can be made to ignite in air.)*

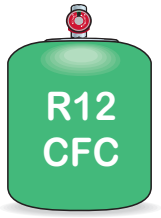
Corrosive (D002)
Corrosive wastes are liquids that dissolve metals and other materials, or that burn the skin. They have a pH of 2 or lower, or 12.5 or higher.

Reactive (D003)
Reactive wastes are unstable and react rapidly or violently to shock, heat, or pressure, or when mixed with water or other materials.

Toxic (D004)
Toxic wastes generally have adverse health effects. They need only contain a small amount of a certain material such as heavy metals or toxic organics.

Air Conditioning Repair

The refrigerant used in most cars older than 1992 is R-12, commonly known as FREON™. R-12 is a type of chlorofluorocarbon (CFC) and CFCs have been shown to destroy the "ozone layer" in the Earth's upper atmosphere. This "layer" protects us from the Sun's ultraviolet rays that can cause damaging effects such as skin cancer, eye cataracts, crop damage, etc.

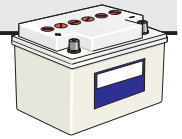


- All A/C repair facilities must be permitted by DERM for this work.
- The release of CFCs into the air is against the law!
- All shops that service automotive air conditioners are required to recover CFCs. You must use "recover/recycle" or "recover-only" equipment approved by the EPA. The equipment must indicate that the unit meets SAEJ standards and that it has also been approved by Underwriters Laboratory (UL).
- It is suggested that any leaks be fixed before adding refrigerant.
- Technicians must be properly trained and certified for this work by at least one of the following EPA approved Technician Certification Programs:
  - Mobile Air Conditioning Society (MACS) (215) 541-4500
  - International Mobile Air Conditioning Association (IMACA) (817) 338-1100
  - National Institute for Automotive Service Excellence (ASE) (703) 713-3800
- R-12 replacements may be used subject to certain conditions:
  - EPA only verifies that replacements when used appropriately are safer for human health and the environment than R-12, not that they are effective or manufacturer approved.
  - Vehicle manufacturers should be contacted to determine any effects on warranties for using R-12 replacements.
  - Even for "drop-in" replacements, the old refrigerant must be completely extracted before charging with the new refrigerant.
  - Each new refrigerant must be used with a unique set of fittings to prevent the accidental mixing of different refrigerants.

Used and Scrap Parts Storage

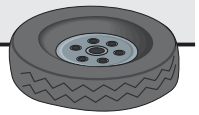
- All fluids and refrigerants must be properly recovered from scrap parts prior to storage, metal recycling, or disposal.
- Used parts should be stored on an impermeable (sealed) surface under cover.
- Scrap parts can be sold or given to metal recyclers.

Batteries



- Used batteries should be stored away from drains, on an impermeable (sealed) surface and under cover, until shipment.
- Used batteries should be returned to a supplier or reclaimer promptly. Lead and sulfuric acid both pose serious threats.

Tires



- Tires can be recapped for reuse. This is especially economical for larger tires such as those used by trucks or buses.
- No more than 1000 tires may be stored at a repair facility without a permit from DERM. Storage also poses potential threats from fires (check with the Fire Department) and mosquito infestation (when rain water is allowed to collect).

Brake Servicing

- Brake fluid must be collected and handled properly.
- Asbestos can cause lung cancer! Many brake pads and shoes may contain asbestos that can be released into the air.
  - ♦ Use a High Efficiency Particulate Air (HEPA) filter vacuum on the braking systems prior to servicing whether dust is visible or not. Once the filter bag has been filled, double bag it, label it as an "asbestos waste" and ship to a Class 1 landfill (see p. 15).
  - ♦ If you use a "wet" system when servicing brakes, filter the solution with a HEPA filter, dispose of the filter as described above and discharge the solution to the sanitary sewers. (See p.15 *"sanitary sewer standards"* for contact info)
  - ♦ To reduce any risk of inhalation, workers are urged to use at least a half-face respirator with a HEPA filter cartridge.

<u>OR</u> 2) It is listed as a hazardous waste in the Code of Federal Regulations, 40 CFR Part 261. This list is very long and may include chemicals that you use daily. If you are unsure, it is suggested that you refer to the list cited and have your waste tested by a laboratory.

Handling and Disposal of Hazardous Wastes

The proper handling of hazardous wastes is very important in order to ensure the health and safety of the public and to protect the environment. Some important things to remember are:

- Never pour waste fluids on open ground, in storm drains, or down shop drains.
- Never mix hazardous and non-hazardous wastes. Even a little hazardous waste can make the entire mixture hazardous and more expensive to dispose of properly.

Containers

- Maintain containers in good condition. Prevent leaks, ruptures and the accumulation of rainwater on the top of drums.
- If a container leaks, transfer all of the waste to a new container.
- Keep lids on, and containers closed, when not in use.
- Use funnels when pouring liquids.
- Use containers that are compatible with the waste being stored.
- Don't mix different or incompatible wastes in the same container.

Labels

Proper labeling can reduce accidents and ensure proper disposal.

This label shows some of the information that should be included.

HAZARDOUS WASTE
(or NON-HAZARDOUS WASTE)
FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

If found, please contact the nearest police or public safety authority or the U.S. EPA.

<type of waste>

<your business' name and address and manifest document number>

<accumulation start date>
(the date when waste was first put in the drum)

<federal waste code numbers>

Waste Storage Areas

- Try to store all hazardous wastes in a single area, however do not store incompatible materials beside each other. Satellite collection points are allowed for work-in-progress, but should be moved to the main storage area once the container is filled or not in use.
- Secondary containment should be provided that is able to contain at least 110% of the largest container's capacity in case of leaks, spills, or punctures. It should have an impermeable (sealed) surface and should be under cover, preferably indoors.
- Ensure that there is sufficient aisle space between drums to allow complete inspection for leaks or damage.
- *Check with the Fire Department for their requirements.*

Transportation and Disposal

- Hazardous wastes must be shipped out by an EPA and DERM permitted hauler to an EPA approved treatment, storage, and disposal facility.
- Use reputable permitted companies for transport and disposal. You are forever liable for any hazardous waste that you generate; a "cradle-to-grave" liability. Even if you have proper documentation, you may still be a potentially responsible party to a clean-up if your waste contributes to the contamination of the environment.

Inspections and Record Keeping

- Any facility generating a hazardous waste should obtain an EPA identification number. (See p.15 for contact information.)
- Keep all records of hazardous wastes handled on-site for at least three (3) years. This includes manifests and any other records documenting amounts stored, reused, or hauled away for disposal.
- Keep records of lab tests for at least three (3) years.
- Keep land disposal restriction forms for at least five (5) years.
- Inspect storage containers and areas for leaks or damage at least once per week and maintain a written inspection log on-site for at least three (3) years.
- Keep any training records for at least three (3) years.

Shop Rags & Towels

- Unless lab testing indicates otherwise, rags covered with oil or solvents cannot be disposed of in the trash and should be disposed of as a hazardous waste or handled by a permitted industrial laundry service.
- Use rags to wipe hands as clean as possible before washing.
- Used rags should be stored free of liquids, in a closed container.

Solvents and Parts Cleaning

- Solvent usage can be reduced by:
  - Not cleaning as many parts.
  - Not using as many solvent tanks.
  - Not having the solvent changed as frequently.
  - Keeping the cover closed on solvent tanks when not in use.
- Extend the life of solvent baths by 3-stage cleaning:

  1) Pre-clean parts with rags or brushes.
  2) Use a tank with old solvent as a presoak.
  3) Use a tank with "new" solvent as a final cleaning. (This tank then becomes the presoak for step 2 when it gets too dirty.)
- Look at the list of ingredients or Material Safety Data Sheets for chemicals that you use. Use the safest solvent that you can find that will still do the job. Especially avoid cleaners that list ingredients such as: *chlorinated solvents, 1,1,1-Trichloroethane, trichloroethylene, tetrachloroethylene, perchloroethylene, methyl ethyl ketone (MEK), carbon tetrachloride, xylene, or toluene.*
- Try to use only one or two types of solvents throughout the entire shop (including spray cans.)
- Investigate the use of a permitted contractor that handles parts washers and solvents. Request the safest solvent available and an extended period between servicing.
- Larger facilities can investigate on-site recovery techniques to reuse solvents including:

  Decanting - *pouring off liquids from a sludge that has settled.*
  Filtration - *passing solvent through a filter to remove solids.*
  Distillation - *separating liquids by boiling and condensing.*
- Remember that even if a cleaner claims to be "environmentally-friendly" and "biodegradable", it usually will not be once it's used.

Pollution Prevention for Mechanical Repair Shops

Permits

Most industrial facilities in Dade County are required to have a permit from DERM. A permit is required for mechanical repair activities. In addition, there may be other permits that are required from DERM and other environmental agencies. This can include permits for underground storage tanks, A/C repair, or even hazardous waste generation. Do you have current permits for your activities? (See p. 15 for a list of contacts.)

Housekeeping & Inventory Control

Keeping your facility clean and organized is important. It reduces accidents and provides a professional environment for employees to work in and customers to see. Here are some ideas:

- Keep your shop clean and your floors dry.
- Only purchase quantities of materials that you can use.
- Mark the purchase date on containers and adopt a "First In - First Out" policy so that older materials are used first.
- Keep all containers closed to prevent evaporation, contamination, and accidental spills.
- Use drip pans to catch drips and leaks from cars. These can then be poured into proper waste storage containers.
- Use absorbent materials to quickly clean-up any spills. "Spill dry" should be picked up as soon as the spill is absorbed. Reusable absorbent pads are available that allow liquids to be "squeezed out" into a proper waste storage container. Unless lab testing indicates otherwise, these materials cannot be disposed in the trash and should be disposed of as a hazardous waste.

Waste Oil and Oil Filters

- Waste oil can be picked up for recycling by a DERM approved hauler. Remember to properly label storage containers as "USED OIL" and that manifests should be kept for at least 3 years.
- Unless lab testing indicates otherwise, used oil filters cannot be disposed of in the trash and should be disposed of as a hazardous waste or sent to a metal recycler. Oil filters should be thoroughly drained and can be crushed.
- Never mix solvents in with your waste oil.

Regulated "Non-Hazardous" Wastes

Although not classified federally as a hazardous waste, there are many materials that are regulated stringently in Dade County. When in doubt, treat a material as a hazardous waste until you are able to verify that it is not, and then determine what are the correct handling and disposal measures. A common example of this type of waste is motor oil.

Air Emission Wastes

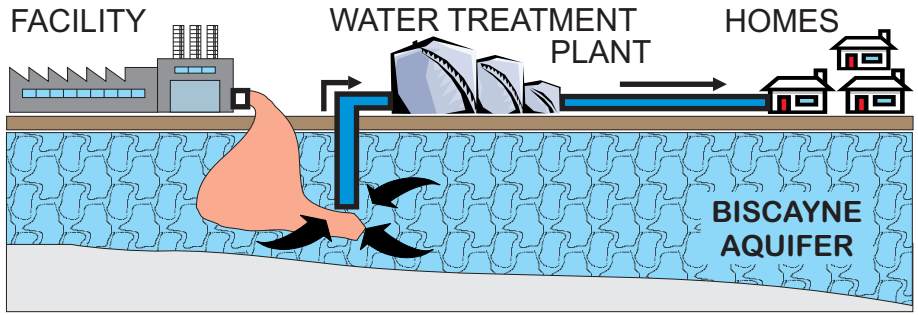
There are many wastes that are released into the air through evaporation, combustion processes, or otherwise. The release of many of these chemicals is regulated and requires an air permit depending on the quantity released. This includes particulates, sulfur dioxide (SO_2), carbon dioxide (CO_2), nitrous oxides (NOx), chlorofluorocarbons (CFCs), Volatile Organic Compounds (VOCs), and many "Hazardous Air Pollutants" (HAPs).

Hazardous Materials

Although less stringently regulated than hazardous ***wastes***, the proper storage and handling of hazardous ***materials*** is equally important. Many of the storage and handling practices described above for hazardous wastes should, and in some cases must, be applied to hazardous materials as well. This includes certain labeling and spill prevention measures.

Storage Tanks

- Plans must be submitted to, and approved by, DERM prior to installing, removing, repairing, or modifying any underground storage tank system.
- Most tanks require state registration and a DERM operating permit that must be renewed annually.
- Regulated tanks must have an approved leak detection system.
- Ensure that tanks, lines, and dispensers, are constructed of proper corrosion resistant materials and are retrofitted to meet scheduled requirements for leak detection, secondary containment, and construction materials.
- Keep records of leak detection activities.
- Consider removing smaller underground tanks, such as waste oil tanks, and replacing them with above ground storage systems.



In South Florida our drinking water comes from just a few feet below the ground. It's the water that fills the tiny cracks and pores in the rocks below us. That's why we all must be careful not to contaminate the ground or groundwater.

Where Does That Drain Go?

It's important to know what types of drains are at your facility:

Storm Drains

These drains are for **rain water only**! They are usually found along streets or in parking lots, and discharge directly to a nearby body of water (lake, canal) or allow the water to percolate into the ground. Keep the area around these drains clean and free of spills and debris.

Drains Leading to Septic Tanks

These drains are for **domestic wastewater only**! Septic tanks allow a short holding time for bacteria to start breaking down domestic waste. From there wastewater goes directly into the ground. Industrial wastewater (even small amounts from washing chemicals off of hands) should never be allowed down these drains because:

1) It can kill the bacteria, often requiring a costly tank pump out.
2) It can directly contaminate our drinking water.
3) It can contaminate your property, requiring expensive clean-ups.

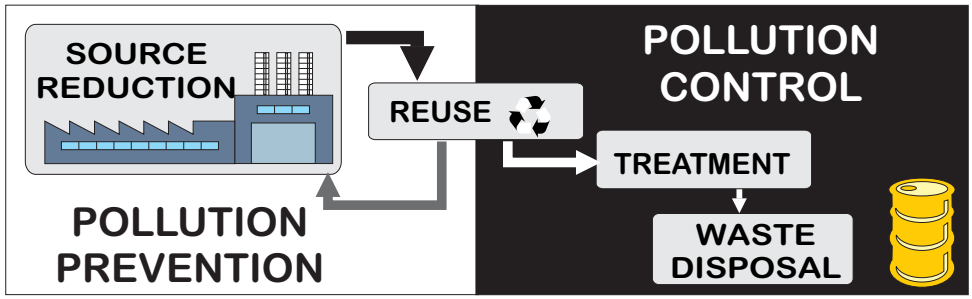
Drains Leading to Sanitary Sewers

These drains are designed primarily for domestic wastewater, but can tolerate very low levels of industrial contaminants. A list of these contaminant levels is available (see p.15 *"sanitary sewer standards"* for contact info). Sanitary sewers are made of a network of pipes that carry wastewater to a treatment plant, where very little treatment occurs before discharging into a nearby body of water (such as miles offshore).

REMEMBER: *Never pour flammable solvents into any sewer system. This may cause an environmental and/or fire and explosion hazard.*

What is Pollution Prevention?

Once you have generated a waste or pollutant your only choice is pollution control (treatment and disposal). What if instead, you reduced or eliminated the wastes or pollutants at the source? Then you would be doing pollution prevention by avoiding the creation of wastes in the first place! This booklet provides information on both pollution prevention and pollution control.



Benefits of Pollution Prevention

- Reduced operating costs through increased efficiency.
- Reduced risk of liability.
- An improved company image.
- Protection of the public health and the environment.

Implementing Pollution Prevention

Too often things are done a certain way because, "It's always been done that way." Well it's time for a change! DERM is encouraging every business to reduce its waste by implementing a pollution prevention program. Here's how:

- Make a commitment to pollution prevention.
- Encourage employees to participate and make suggestions.
- Evaluate the types and quantities of wastes that are generated.
- Find ways to reduce the amount of waste that is generated.
- Make the changes necessary to reduce wastes.

Many waste reduction options are based on common sense and are inexpensive to implement. This booklet contains some ideas to get you started. Your shop may already be using pollution prevention practices without realizing it. Don't forget, *"An ounce of [pollution] prevention is better than a pound of cure."*